



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,709	11/26/2003	Gerald Berger	NANO 0101 PUS	7855

22045 7590 11/30/2007  
BROOKS KUSHMAN P.C.  
1000 TOWN CENTER  
TWENTY-SECOND FLOOR  
SOUTHFIELD, MI 48075

EXAMINER
----------

SINES, BRIAN J

ART UNIT	PAPER NUMBER
----------	--------------

1797

MAIL DATE	DELIVERY MODE
-----------	---------------

11/30/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/723,709	Applicant(s) BERGER ET AL.	
	Examiner Brian J. Sines	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 19-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election with traverse of group I comprising claims 1 – 18 in the reply filed on 9/13/2007 is acknowledged. The traversal is on the ground(s) that the methods are essentially related. This is not found persuasive because the different methods are directed to independent and distinct processes as indicated in the restriction requirement mailed 8/16/2007.

The requirement is still deemed proper and is therefore made FINAL.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 
1. Claims 1 – 5, 10 – 13 and 15 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over LaPerre et al. (U.S. Pat. No. 4,329,393) (“LaPerre”) in view of Natan et al. (U.S. Pat. No. 7,225,082) (“Natan”).

Regarding claims 1, 3 and 4, LaPerre teaches the use of coating compositions for the retrospective identification of articles. LaPerre teaches the use of labeling compositions containing visually-readable identifier microparticles that can be applied to the surface of the article during its manufacture. The microparticles are usually less than about 1,000 micrometers in their broadest dimension and bear a code or indicia of information which is readable by the normal human eye with the aid of a simple magnifying device and the use of a beam of light. The coating is substantially indiscernible under normal viewing conditions (see, e.g., col. 2, lines 20 – 54).

LaPerre does not specifically teach the use of metal oxide nanoparticles as a label or taggant material in the disclosed process.

The applicant is advised that the Supreme Court recently clarified that a claim can be proved obvious merely by showing that the combination of known elements was obvious to try. In this regard, the Supreme Court explained that, “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art has a good reason to pursue the known options within his or her technical grasp.” An obviousness determination is not the result of a rigid formula disassociated from the consideration of the facts of the case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not. The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. Furthermore, the simple substitution of one known element for another is likely to be obvious when predictable results are achieved. See *KSR Int’l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007).

Art Unit: 1797

Regarding claims 1, 3 and 4, LaPerre teaches the use of coating compositions for the retrospective identification of articles. LaPerre teaches the use of labeling compositions containing visually-readable identifier microparticles that can be applied to the surface of the article during its manufacture. The microparticles are usually less than about 1,000 micrometers in their broadest dimension and bear a code or indicia of information which is readable by the normal human eye with the aid of a simple magnifying device and the use of a beam of light. The coating is substantially indiscernible under normal viewing conditions (see, e.g., col. 2, lines 20 – 54).

LaPerre does not specifically teach the use of metal oxide nanoparticles as a label or taggant material in the disclosed process.

The applicant is advised that the Supreme Court recently clarified that a claim can be proved obvious merely by showing that the combination of known elements was obvious to try. In this regard, the Supreme Court explained that, “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art has a good reason to pursue the known options within his or her technical grasp.” An obviousness determination is not the result of a rigid formula disassociated from the consideration of the facts of the case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not. The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. Furthermore, the simple substitution of one known element for another is likely to be obvious when predictable results are achieved. See *KSR Int’l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007).

In this regard, Natan teaches nanoparticles that function as “nanobarcodes” that can be used to encode information and thereby serve as tags or labels. Natan teaches that the disclosed nanoparticles can also be used as a tag or label in non-biological systems, such as in tagging other materials such as paints, fasteners, tires, paper, documents, pills, etc. (see, e.g., col. 15, lines 49 – 67). Natan teaches that the nanoparticles can be comprised of a metal oxide and have a length of from 20 nm to 50  $\mu\text{m}$  and a particle width of from 5 nm to 50  $\mu\text{m}$  (see, e.g., col. 3, lines 10 – 39; col. 4, lines 21 – 32; col. 8, lines 28 – 65; col. 16, lines 1 – 7). Natan teaches that the nanoparticles can be detected by various emission detection methods, such as by electromagnetic, optical, spectrometric and spectroscopic interrogation methods (see, e.g., col. 7, lines 36 – 56; col. 9, lines 19 – 39; col. 10, lines 27 – 43). Both of the taggant particles as disclosed by Natan and LaPerre perform essentially the same function in each disclosure. Consequently, a person of ordinary skill in the art would accordingly have recognized the suitability of substituting the nanoparticles disclosed by Natan with the microparticles used in the method disclosed by LaPerre to yield the predictable result of rendering a manufactured article identifiable (see also MPEP § 2144.07). Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate the use of the metal oxide nanoparticles taught by Natan as a taggant material with the method of LaPerre in order to effectively render a manufactured article identifiable.

Regarding the recitation of the functional characteristics of the taggant nanoparticles, since Natan teaches that the metal oxide nanoparticles have essentially the same structure as claimed nanoparticles, i.e., the functional property of being up and down-converting, the recited claimed properties and functions are considered identical or

Art Unit: 1797

inherent. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (see MPEP § 2112.01). The Courts have held that it is well settled that where there is a reason to believe that a functional characteristic would be inherent in the prior art, the burden of proof then shifts to the applicant to provide objective evidence to the contrary. See *In re Schreiber*, 128 F.3d at 1478, 44 USPQ2d at 1478, 44 USPQ2d at 1432 (Fed. Cir. 1997).

Regarding claims 2, 5 and 10, Natan suggests the use of mixed or different metal oxide nanoparticles (see, e.g., col. 5, lines 54 – 65; col. 3, lines 16 – 27). Natan teaches that the nanoparticles can comprise different compositions (see, e.g., col. 3, lines 39 – 67). Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate the use of mixed metal oxide nanoparticles that can also comprise a plurality of phases of metal oxide of differing composition as a taggant material with the method of LaPerre in order to effectively render a manufactured article identifiable.

Claims 11 – 13 and 15 are considered product-by-process claims. The determination of patentability is based upon the apparatus structure itself. The patentability of a product or apparatus does not depend on its method of production or formation. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (see MPEP § 2113).

Regarding claims 16 – 18, LaPerre teaches that various articles, such as hand tools, maintenance equipment, vehicles, machinery, etc., can be coated using the disclosed method (see, e.g., col. 1, line 62 – col. 2, line 17). It is considered well known

Art Unit: 1797

in the art that these various items can comprise surfaces comprising either metal, glass or polymer, etc. Therefore, it would have been obvious to a person of ordinary skill in the art to utilize an article that is made of these recited materials with the disclosed method.

2. Claims 6 – 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over LaPerre and Natan and further in view of Nonninger (German Pat. DE 10131173 A1) (“Nonninger”).

Regarding claims 6 and 7, Natan does not specifically teach nanoparticles containing luminescent centers comprising of at least one transition metal or rare earth metal dopant in a metal oxide matrix.

Nonninger teaches nanoparticles containing luminescent centers comprising of at least one transition metal or rare earth metal dopant in a metal oxide matrix (see, e.g., paragraphs 1, 13, 14 and 16). Nonninger teaches that the disclosed nanoparticles are suitable for use as luminescent pigments or taggants (see, e.g., paragraph 1).

Consequently, a person of ordinary skill in the art would have recognized the suitability of incorporating the use of the nanoparticles taught by Nonninger with the process for rendering a manufactured article identifiable as disclosed by LaPerre. The selection of a known material, which is based upon its suitability for the intended use, is within the ambit of one of ordinary skill in the art (see MPEP § 2144.07). Therefore, it would have been obvious to a person of ordinary skill in the art to further incorporate the nanoparticle structure as disclosed by Nonninger with the method of LaPerre in order to effectively render a manufactured article identifiable.

Regarding claims 8 and 9, Nonninger teaches the incorporation of Zn-doped  $\text{Al}_2\text{O}_3$  and Y or Eu-containing compounds (see paragraphs 13 and 16).



Art Unit: 1797

Claim 14 is considered a product-by-process claim. The determination of patentability is based upon the apparatus structure itself. The patentability of a product or apparatus does not depend on its method of production or formation. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (see MPEP § 2113).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional cited prior art teach various pertinent methods for rendering articles identifiable using taggants.

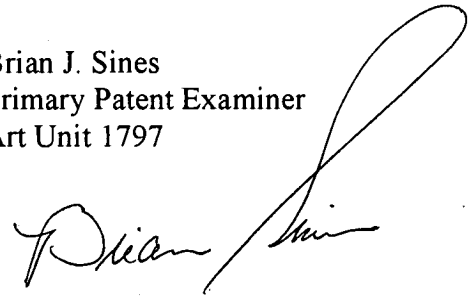
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines whose telephone number is (571) 272-1263. The examiner can normally be reached on Monday - Friday (11 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1797

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brian J. Sines  
Primary Patent Examiner  
Art Unit 1797

A handwritten signature in black ink, appearing to read "Brian Sines", with a large, stylized loop at the end of the signature.